

Appl. No. 10/761,846
Amtd. dated May 20, 2005
Reply to Office Action of February 22, 2005

REMARKS

Claims 1-12 are pending in the present Application, and claim 12 has been withdrawn from consideration. Claims 1, 6, and 10 have been amended and new claim 13 has been added, leaving Claims 1-11 and 13 for further consideration upon entry of the amendments. Figures 1-4 have been amended, and Figure 5 has been canceled. The paragraphs on pages 2, 3, 5, and 8 of the specification have been amended. Support for the amendment can be found in the originally filed specification. No new matter has been added by the amendments. Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Election/Restrictions:

The provisional election was made on January 13, 2005, without traverse, to prosecute the invention of Group I, claims 1-11. Applicants affirm this election.

Drawing Objections:

The drawings stand objected to because it is difficult to distinguish between embodiments in Figures 1-5 due to poor quality. Figs. 1-4 have been amended to overcome the drawing objections. Fig. 5 has been canceled without prejudice. To make consistency, the specification has been amended to delete the description about Fig. 5. No new has been added by the amendment. Withdrawal of the drawing objection is respectfully requested.

Claim Rejections Under 35 U.S.C. § 112, first paragraph

Claims 1-11 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 6, and 10 have been amended to overcome the claim rejections. Withdrawal of the claim rejections under 35 U.S.C. § 112, first paragraph, is respectfully requested.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-2 and 5-9 stand rejected under 35 U.S.C. § 103(a), as being allegedly unpatentable over Pfof et al., US 6,485,690 B1 (hereinafter "Pfof") in view of O'Connor et al., US 6,729,352 B2 (hereinafter "O'Connor"), Friedman et al., US 5,834,222 (hereinafter "Friedman"), Griffin et al., US 5,321,123 (hereinafter "Griffin"), and Courtright, US 4,598,628

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(hereinafter "Courtright") for the reasons stated on pages 8-15 of the office action. Applicants respectfully traverse the rejection.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; and that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970). Any of the references, however, does not teach or suggest all elements of claim 1.

The Examiner has stated on pages 9-10 of the office action that Pfof fails to teach that the reservoir layer includes a sample reservoir, a dye reservoir, and a plurality of control reservoirs, each of the sample reservoir, dye reservoir, and control reservoirs having a hydrophobic upper barrier connected to a compressed-air inlet and a hydrophobic lower barrier connected to a liquid outlet, but that O'Connor teaches a chamber 314 enclosed by two hydrophobic porous membranes 303 and 305 on either side of the chamber. The Examiner has also stated on pages 10-11 of the office action that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Pfof with a chamber 314 enclosed by two hydrophobic porous membranes 303 (i.e. hydrophobic upper barrier) and 305 (i.e., hydrophobic lower barrier) on either side of the chamber, wherein membrane 303 is gas permeable/fluid impermeable and membrane 305 allows fluid flow therethrough only when the fluid is exposed to a vacuum after fluid metering, as taught by O'Connor, in order to provide membranes that allow selective vacuum-induced fluid flow through only one side of a chamber.

Each of the hydrophobic upper barriers described in the claimed invention is connected to a corresponding compressed-air inlet, and the compressed-air inlet is connected to a compressed-air storage tank via a valve. Therefore, the pressure applied from the compressed-air inlet to the hydrophobic upper barrier is controlled by the valve, thereby controlling the discharge of the liquid in the reservoirs. In contrary, Fig. 16 and Col. 26, lines 10-41 of O'Connor show that the third layer 303 is located between the second and fourth layers 302 and 304 to prevent liquid from entering the actuation chamber 313. The invention

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disclosed in O'Connor, however, does not teach or suggest that the third layer 303 is connected to any of compressed air inlet. O'Connor is further silent in controlling the pressure applied to the third layer 303.

Therefore, even if Pfof is combined with O'Connor, the combination does not render claim 1 obvious. This is because neither Pfof nor O'Connor teaches or suggests the hydrophobic upper barriers connected to compressed-air inlets. Any of Friedman, Griffin, and Courtright does not cure the deficiency of the combination of Pfof and O'Connor. Thus, the combination of Pfof, O'Connor, Friedman, Griffin, and Courtright does not teach or suggest the element "each of the sample reservoir, the dye reservoir, and the control reservoirs has a hydrophobic upper barrier connected to a corresponding one of the compressed-air inlets and a hydrophobic lower barrier connected to a separate liquid outlet", as recited in claim 1.

The Examiner has also stated on page 9 of the office action that Pfof teaches that fluids can also be delivered through tube 68 (i.e. dye/buffer inlet part having a dye inlet connected to a liquid outlet of a reservoir and a buffer inlet port), which enters the processor through the middle layer 64, or distribution layer, and deposited in the reaction wells in the bottom plate 66, or well plate layer. Applicants respectfully disagree with the Examiner.

The dye/buffer inlet part as disclosed in claimed invention includes a dye inlet connected to a liquid outlet of the dye reservoir, and a buffer inlet port connected to the compressed-air storage tank. In contrary, Col. 9, lines 56-58 of Pfof simply discloses that reagents and other fluids are introduced into this central layer 64 through an edge tube 68. There is no disclosure or suggestion in Pfof that the edge tube 68 is connected to the compressed-air storage tank. Instead, Fig. 13 of Pfof teaches that pressure members 40 and 42 are provided to a top layer 12', which is not the layer including the edge tube 68. Therefore, Pfof does not teach or suggest the element "a buffer storage tank connected to the buffer inlet port of the dye/buffer inlet part by a valve", as recited in claim 1. Any of O'Connor, Friedman, Griffin, and Courtright does not cure the deficiency of Pfof. Therefore, the combination of Pfof, O'Connor, Friedman, Griffin, and Courtright does not teach or suggest the element "a buffer storage tank connected to the buffer inlet port of the dye/buffer inlet part by a valve", as recited in claim 1.

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As stated above, the combination of Pfof, O'Connor, Friedman, Griffin, and Courtright does not render claim 1 obvious, because it fails to teach or suggest all elements of claim 1. Claims 2 and 5-9 depend from claim 1, thus are believed to be allowable due to their dependency on claim 1.

Claim 3 stands rejected under 35 U.S.C. § 103(a), as being allegedly unpatentable over Pfof in view of O'Connor, Friedman, Griffin, and Courtright, and further in view of Roe et al. US 6,093,869 (hereinafter "Roe") for the reasons stated on pages 15-16 of the office action. Claim 4 stands rejected under 35 U.S.C. § 103(a), as being allegedly unpatentable over Pfof in view of O'Connor, Friedman, Griffin, and Courtright, and further in view of Roe, and further in view of Oberhardt, US 5,601,991 (hereinafter "Oberhardt") and Ngo et al., US 5,219,529 (hereinafter "Ngo") for the reasons stated on pages 16-18 of the office action. Claim 10 stands rejected under 35 U.S.C. § 103(a), as being allegedly unpatentable over Pfof in view of O'Connor, Friedman, Griffin, and Courtright, and further in view of Knedlik, US 4,381,099 (hereinafter "Knedlik") for the reasons stated on pages 18-19 of the office action. Claim 11 stands rejected under 35 U.S.C. § 103(a), as being allegedly unpatentable over Pfof in view of O'Connor, Friedman, Griffin, and Courtright, and further in view of DeCarbo, Sr. et al., US 5,697,132 (hereinafter "DeCarbo, St.") for the reasons stated on pages 19-20 of the office action. Applicants respectfully traverse the rejection.

Any of Roe, Oberhardt, Ngo, Knedlik, DeCarbo, St. does not teach or suggest the elements "each of the sample reservoir, the dye reservoir, and the control reservoirs has a hydrophobic upper barrier connected to a corresponding one of the compressed-air inlets and a hydrophobic lower barrier connected to a separate liquid outlet; a buffer storage tank connected to the buffer inlet port of the dye/buffer inlet part by a valve", as recited in claim 1, from which claims 3-4 and 10-11 depend from. Therefore, any combination of Pfof, O'Connor, Friedman, Griffin, Courtright, Roe, Oberhardt, Ngo, Knedlik, and DeCarbo, St. does not render claim 1 obvious because it fails to teach or suggest all elements of claim 1. Accordingly, claims 3-4 and 10-11 are believed to be allowable due to their dependency on claim 1.

Withdrawal of the claim rejections 35 U.S.C. § 103 is respectfully requested.

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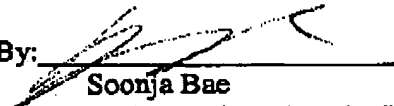
Conclusion

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicant. Accordingly, reconsideration and allowance are requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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